EXPERIMENT - 5

Object Oriented Programming Lab

Aim

Write a program for multiplication of two matrices using OOP.

Syeda Reeha Quasar
14114802719
4C7

EXPERIMENT – 5

Aim:
Write a program for multiplication of two matrices using OOP.

Source Code:

```cpp
#include <iostream>

using namespace std;

class MatrixMultiplication{
    public:
        int a[3][3];
        int b[3][3];
        int c[3][3];

        void InputMatrix();
        void multiply();
        void result();
};

void MatrixMultiplication::InputMatrix(){
    cout << "Enter the values for the first 3 x 3 matrix row wise" << endl;
    for (int i = 0; i < 3; i++) {
        for (int j = 0; j < 3; j++)
        {
            cin >> a[i][j];
        }
    }
    cout << "Enter the values for the second 3 x 3 matrix row wise" << endl;
    for (int i = 0; i < 3; i++) {
        for (int j = 0; j < 3; j++) {
            cin >> b[i][j];
        }
    }
}

void MatrixMultiplication::multiply(){
    for (int i = 0; i < 3; i++) {
        for (int j = 0; j < 3; j++) {
            c[i][j]=0;
```

```cpp
                for (int k = 0; k < 3; k++) {
                    c[i][j] += a[i][k] * b[k][j];
                }
            }
        }
}

void MatrixMultiplication::result(){
    cout << "The Resultant Matrix is: \n";
    for (int i = 0; i < 3; i++) {
        for (int j = 0; j < 3; j++) {
            cout << " " << c[i][j];
        }
        cout << endl;
    }
}

int main(){
    MatrixMultiplication x;
    cout << "Program to multiply 2 3X3 matrices: " << endl;
    x.InputMatrix();
    x.multiply();
    x.result();
    return 0;
}
```

Output:

```
PS D:\sem 4\cpp\oops> cd "d:\sem 4\cpp\oops\" ; if ($?) { g++ matrixMultiplications.cpp -o matrixMultiplications } ; if ($?) { .\matrixMult
iplications }
Program to multiply 2 3X3 matrices:
Enter the values for the first 3 x 3 matrix row wise
1 2 3
4 5 6
7 8 9
Enter the values for the second 3 x 3 matrix row wise
2 2 2
2 2 2
2 2 2
The Resultant Matrix is:
 12 12 12
 30 30 30
 48 48 48
PS D:\sem 4\cpp\oops> cd "d:\sem 4\cpp\oops\" ; if ($?) { g++ matrixMultiplications.cpp -o matrixMultiplications } ; if ($?) { .\matrixMult
iplications }
Program to multiply 2 3X3 matrices:
Enter the values for the first 3 x 3 matrix row wise
1 2 3
4 5 6
7 8 9
Enter the values for the second 3 x 3 matrix row wise
1 2 3
4 5 6
7 8 9
The Resultant Matrix is:
 30 36 42
 66 81 96
 102 126 150
PS D:\sem 4\cpp\oops>
```

```
PS D:\sem 4\cpp\oops> cd "d:\sem 4\cpp\oops\" ; if ($?) { g++ matrixMultiplications.cpp -o matrixMultiplications } ; if ($?) { .\matrixMultiplications }
Program to multiply 2 3X3 matrices:
Enter the values for the first 3 x 3 matrix row wise
1 2 3
4 5 6
7 8 9
Enter the values for the second 3 x 3 matrix row wise
1 1 1
1 1 1
1 1 1
The Resultant Matrix is:
 6 6 6
 15 15 15
 24 24 24
PS D:\sem 4\cpp\oops>
```